NAVAL WAR COLLEGE
Newport, R.I.

INSTITUTIONALIZING EXPRESS AIRLIFT FOR CONTINGENCY OPERATIONS

by

Douglas Jackson

Major, United States Air Force

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: Douglas Jackson

13 February 1995

Paper directed by Captain D. Watson
Chairman, Joint Military Operations Department

REPORT DOCUMENTATION PAGE

1. **Report Security Classification:** UNCLASSIFIED	
2. **Security Classification Authority:** N/A	
3. **Declassification/Downgrading Schedule:** N/A	
4. **Distribution/Availability of Report:** **DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.**	
5. **Name of Performing Organization:** Joint Military Operations Department	
6. **Office Symbol:** 1C	7. **Address:** Naval War College 686 Cushing Rd. Newport, RI 02841-5010
8. **Title** (Include Security Classification): **Institutionalizing Express Airlift for Contingency Operations** (Unclassified)	
9. **Personal Authors:** Jackson, Douglas (NMI)	
10. **Type of Report:** Final	11. **Date of Report:** 13 February 1995
12. **Page Count:** 27	
13. **Supplementary Notation:** A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Joint Military Operations Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.	
14. **Ten key words that relate to your paper:** airlift, priority, backlog, institutionalize, sustainment, overnight, cargo, express, aircraft, and transportation.	
15. **Abstract:** On reverse.	

16. **Distribution/ Availability of Abstract:** Unlimited	**Unclassified** Unclassified	**Same As Rpt**	**DTIC Users**
18. **Abstract Security Classification:** Unclassified			
19. **Name of Responsible Individual:** Chairman, Joint Military Operations Department			
20. **Telephone:** (401) 841-3414/4120		21. Office Symbol: 1C	

ABSTRACT

The U.S. military should institutionalize an express channel airlift system for high priority shipments to be used during larger contingency operations. Similar systems were used during the Second World War, the Korean Conflict, and Vietnam. The system should be operated by civilian air express companies unless the strategic aerial port at the destination in theater is in a hostile environment. The need for this service materializes because of the backlogs created by the dramatic increase in the number of shipments during larger contingencies. This large volume of priority shipments at the ports creates, in essence, a "no priority" system. Consequently, the highest of priority shipments--real "show stoppers"--get delayed at the ports awaiting airlift. This increased volume at the ports is inevitable because, under the current shipment priority system, units are authorized to raise the priority of requisitioned items based on how critically the items are needed. Procedures for implementing an express airlift channel should be incorporated into joint military publications and warfighting CINC's contingency plans. This will preclude the wheel from being re-invented during the next major contingency.

TABLE OF CONTENTS

SECTION		PAGE
I	**PRELIMINARIES**	
	Title Page	i
	Abstract	ii
	Table of Contents	iii
	List of Tables	iv
II	**TEXT**	
	Introduction	1
	Thesis	2
	Overview	3
	History of High Priority Cargo Airlift .	4
	A Description of the Express Airlift System	8
	The Need for an Express Airlift System in Major Contingencies	10
	Institutionalizing a High Priority Airlift Channel for Contingency Operations	16
	Conclusion	18
III	**REFERENCE MATERIALS**	
	Notes	20
	Bibliography	22

LIST OF TABLES

TABLE	TITLE	PAGE
I	UMMIPS Priority Designators	13
II	Standard Delivery Times	14
III	Transportation Priority / Mode Designators	14

INTRODUCTION:

To ensure the U.S. military wins any future conflict in which it may become involved, it is important that its weapon systems (ships, tanks, aircraft, etc.) operate correctly. When vital equipment breaks down, quick repairs are critical. Repairs sometimes can be accomplished by fixing the malfunctioning component; but more often than not, repairs are completed by replacing a broken part.

Replacement parts may be available in theater or they may be procured only from state-side supply points. The actual ability to obtain critical components from supply depots in the United States and move them expeditiously to repair points in the theater of operation has great importance to whether U.S. forces are able to deliver "bombs on target" at a time of their choosing.

THESIS:

The Department of Defense (DOD) should institutionalize the provisions for a frequency channel express airlift route for high priority cargo.

OVERVIEW:

This paper first looks at the history of high priority cargo express airlift during past wars and contingencies. This review will include the Second World War, the Korean Conflict, Vietnam, and the War in the Persian Gulf. This will be followed by examining the issue of airlift movement control with an overview of corrective actions taken to reduce airlift movement control problems. After a description of the express airlift system, including a discussion of whether the system should be operated by civilian or military aircraft, the reason for the creation of the express airlift channel used during Desert Shield and Desert Storm is examined. The existing DOD priority system and the problem of cargo saturation at the aerial ports of embarkation (APOEs) during conflicts such as Desert Shield and Desert Storm will be analyzed to show how "surge airlift requirements" are legitimate. This is explained, in part, by noting that users are not widely abusing the priority system by assigning a higher priority to cargo than is authorized. Certainly, there was some priority abuse during past contingencies, but not to the extent that is generally believed. Finally, institutionalizing the provisions for express airlift service will be suggested in doctrinal format.

HISTORY OF HIGH PRIORITY CARGO AIRLIFT:

In each of the three previous large-scale wars the United States was engaged in prior to Desert Storm--the Second World War, the Korean Conflict, and Vietnam--the U.S. military experienced a need for, and established, a high priority sustainment channel airlift system as an attempt to satisfy user requirements. As our past wars have become increasingly materiel and equipment dependent, and wartime sustainment requirements continue to outstrip peacetime sustainment needs, the establishment of a "contingency" high priority sustainment airlift system is an absolute necessity. For example, in Desert Shield and Desert Storm, APOEs were backlogged with many tons of high priority cargo. Consequently, even the highest priority cargo, bona fide "show stoppers", were stranded at the APOEs. This problem must be fixed.

In the past, the smooth flow of cargo from the United States to the theater of operations during a conflict via airlift was hindered for various reasons. First, there was a lack of sufficient number of aircraft to efficiently facilitate these increased flows. Second, there was a lack of movement control to properly manage priority cargo flow for the limited number of airframes that were available.[1]

Limitations caused by shortages of aircraft have created problems for the war fighter at the front lines in the past. During the Second World War, "The ultimate cause of the backlogs

was, indeed, a shortage of airplanes and could only right itself slowly with the eventual delivery of airplanes on order."[2] In Korea, ". . .the airlift system lacked the capacity to move anything but the highest priority cargo."[3] In 1970, the Joint Logistics Review Board noted of the Vietnam War, "The airlift system was at times saturated during the buildup period, and substantial quantities of air cargo were diverted to surface transportation."[4]

When the number of aircraft is limited, it becomes that much more important to establish and enforce strict controls over the movement of air eligible cargo. Unfortunately, there are numerous instances throughout recent history where the lack of movement control caused major problems in the airlift system. General William H. Turner, who orchestrated the 1948-1949 Berlin Airlift operation and the Burma "Hump" operation (that supplied Chiang Kai-shek's Nationalist Chinese forces in World War II) stated, "It should be constantly borne in mind that the primary use of air transport should be to airlift critical, scarce, and expensive items routinely. . . ."[5] Primarily, controlling materiel movement entails assigning priorities to each and every military shipment. When the system is not policed to ensure compliance, APOEs become saturated with cargo. This became evident in the Korean Conflict, during which:

> ". . .within three weeks after the start of the conflict, it became obvious that many of the lessons learned during World War II had been forgotten. More than one-half the initial requisitions were listed top priority. Since this priority designated air transportation, large backlogs of shipments quickly accumulated in U.S. ports because air cargo

capabilities could accommodate only a fraction of the amounts requested."[6]

Vietnam also experienced many movement control problems. "Lack of it [movement control] during early Vietnam years caused port congestion at both ends of the transportation system, resulting in delayed receipt of critical material by combat organizations."[7]

When the problem of not getting the highest priority cargo to the desert in a timely manner resurfaced during the Gulf War, the "Desert Express" airlift channel was created. ("Desert Express" was the term given to the daily channel airlift route from Charleston Air Force Base, SC to Dhahran, Saudi Arabia for high priority cargo during Desert Shield and Desert Storm.) Similar arrangements were made during the previous conflicts mentioned above. Two examples include the "Red Ball" airlift channel from the United States to Calcutta, India during the Second World War,[8] and the "Red Ball Express Number Two" that operated from the United States to Vietnam. When the "Red Ball Express Number Two" was implemented, high priority items moved within 24 hours of arriving at the APOEs.[9]

Further examination of history reveals successful attempts to interject procedures to ensure compliance with movement control standards. One such procedure was the establishment of policing agencies to allocate space on airlift missions, prioritize movement, and control high priority air cargo transiting the various systems. During the Korean Conflict, the Far East Command Air Priority Board in Tokyo accomplished this

task.[10] In Vietnam, the responsible organization was the Pacific Movements Priority Agency (PAMPA). PAMPA has been credited as, ". . .the single most important element of the movement control system's success."[11] During the Persian Gulf War, each military service employed their branch's Airlift Clearance Authority (ACA) to act as a "clearing house" for shipments approved for movement on the "Desert Express".

A DESCRIPTION OF THE EXPRESS AIRLIFT SYSTEM:

The U.S. military needs to be supported by an express airlift system during major contingencies in the future. There are two ways to run an express airlift system. The choice of airlift system will depend on whether the aerial port of debarkation (APOD) in the theater of operations is in a friendly or a hostile environment. In a friendly environment, such as experienced at the APODs of Riyadh and Dhahran in Saudi Arabia during Desert Shield and Desert Storm, a commercial air express carrier should be used to accomplish the intertheater express airlift channel.

As "show stopper" items are requisitioned from the theater, those items would be: (1) retrieved from military installations or supply depots; (2) sent to the express carrier's hub (an airport in the United States) via an express mode of service; (3) processed and consolidated with other cargo; (4) and shipped on the express carrier's aircraft from the hub (which would be designated as the APOE for these express shipments) to the APOD on a frequency (optimally, one flight per day) basis. This will free up scarce military aircraft to perform other important missions.

In the event that the APOD is in a hostile environment, retrieved items can be sent to a designated military APOE via express service where those items will be shipped on military

aircraft to the APOD on a daily basis. This was the system used during Desert Shield and Desert Storm.

A commercially operated air express system is the preferred choice for two reasons. First, commercial air express companies perform this mission efficiently every day. They have the infrastructure to run an express airlift system for the military during a contingency. Second, a commercially operated system would free up scarce military aircraft to perform other high priority missions.

In either option, every shipment must be approved for movement on the express airlift channel by the appropriate military service's ACA. For example, a Navy shipment must be approved by the Naval ACA. When a military service branch fills its daily allocation (a predetermined number of pallet positions per flight), that service may not approve any further shipments for that day. This is a necessary step to prevent a backlog of cargo at the APOE. A backlog would defeat the purpose of an express air service. Situational emergencies would be handled by ACA coordination.

These rudimentary mechanics of the express airlift system do not explain why the priority system allows airlift channels to get bogged down to a snail's pace, or how the express airlift system can ensure that "show stopper" parts move to their destination quickly. This explanation will follow in the next section.

THE NEED FOR AN EXPRESS AIRLIFT SYSTEM IN MAJOR CONTINGENCIES:

Why do APOEs acquire such large backlogs of cargo during major contingencies? The major contingencies examined are relatively large in scale and lengthy in duration. The Second World War, Korean Conflict, Vietnam, and Desert Shield and Desert Storm fit into this category, whereas the Grenada and Panama Operations do not.

There are many reasons why, during contingency operations, APOEs become inundated with large volumes of cargo that create huge backlogs. During Desert Shield and Desert Storm, deployment and sustainment operations occurred simultaneously. Either operation by itself could detrimentally affect port operations; but together, the effects were devastating. Even with 95% and 90% of Air Mobility Command's C-5s and C-141s respectively dedicated to Desert Shield, along with the civilian aircraft employed, there was a dramatic increase in the volume of cargo at APOEs. The civilian aircraft activated in Stage I of the Civil Reserve Air Fleet plus those airliners that voluntarily flew more than 100 missions in the first 10 days of the operation could not stem the tide of the backlog buildups at the APOEs.[12]

Individual units raising the priority of their own cargo shipments also led to large backlogs at the APOEs. This unit-initiated action was one of the the main reason for port saturation. Since units were authorized to raise the priority

of requisitioned items under current DOD guidance outlining shipment priority standards and procedures, allegations of priority abuse were, for the most part, unwarranted. A unit preparing for war in a theater of operations must have a higher priority than it normally has when back in the United States in peacetime. Yet, when almost every shipment is designated the highest priority and there are not enough aircraft to move this important cargo in a timely manner, everything becomes a "no priority" shipment. As units "game" the priority system, other users become frustrated because bona fide "show stopper" items stall at bogged-down APOEs. This is exactly what transpired during Desert Shield and led to the creation of the "Desert Express".

Specifically, the "Desert Express" airlift channel was developed when the Army Aviation Systems Command, located in St. Louis, arranged for commercial express movement of Apache helicopter parts to Saudi Arabia. Additionally, U.S. Air Force units, such as the 363 Tactical Fighter Wing, located at Shaw Air Force Base in South Carolina, moved parts via Federal Express to Abu Daubi. These uncoordinated, unilateral service efforts to meet their pressing missions in the desert finally led to the realization that a wartime air express mission was an essential requirement for "war stopper" weapon system spare parts. The "Desert Express" was established by USTRANSCOM to meet this requirement approximately 80 days after force deployment began.

The DOD priority system permits units to raise the priority on parts and equipment they requisition during increased peacetime posture and in war. The two governing directives that render guidance for the priority of materiel movement control in the defense transportation system are DOD Directive 4410.6, *Uniform Material Movement and Issue Priority System* (UMMIPS), and DOD Directive 4500.32R, *Military Standard Transportation and Movement Procedures* (MILSTAMP). UMMIPS prioritizes DOD organizations "in terms of their importance for support"[13] by assigning a two-digit priority designator (PD) for every shipment. The PD is based on two determinants--the unit's force activity designator (FAD) and urgency of need designator (UND).

The FAD indicates the mission essentiality of a unit to meet national military objectives. FADs are enumerated I-IV with I being the most important and IV the least. A higher FAD may be assigned to a unit by the JCS to improve its readiness posture when it is within 90 days of deploying.

The UND is the priority designator that the unit can change based upon its urgency of need. It is a subjective determinant based upon the judgment of unit members. UND "A" designates those items required for immediate use, without which a unit cannot accomplish its mission. UND "B" designates items required for immediate use, without which a unit's ability to perform its mission will be impaired. UND "C" designates items necessary for stock replenishment.[14]

Priority Designators are determined by linking the FAD and UND as shown in Table I.[15]

TABLE I

UMMIPS PRIORITY DESIGNATORS

	UND A	UND B	UND C
FAD I	01	04	11
FAD II	02	05	12
FAD III	03	06	13
FAD IV	07	09	14
FAD V	08	10	15

The potential for priority abuse exists because unit members determine UNDs for all items they requisition. UMMIPS assigns the responsibility for controlling priority designation with the unit commander. The issue of priority abuse was discussed by William C. Cook in the 1988 *Joint Material Apportionment and Allocation* report prepared for the Joint Chiefs of Staff J-4. The report noted that: "During the early stages of a crisis, however, many more units would be authorized to submit higher priority requisitions in order to achieve wartime material readiness levels."[16]

When the PD is determined, a standard delivery date (SDD) is computed. Table II depicts delivery standards for the various PD groupings as summarized in Army Regulation 725-50.[17]

TABLE II

STANDARD DELIVERY DATE

PD 01-03 Must arrive at an overseas destination within 12 days of requisition.
PD 04-08 Must arrive at an overseas destination within 16 days of requisition.
PD 09-15 Must arrive at an overseas destination within 82 days of requisition.

MILSTAMP then assigns the transportation priority and determines the mode of shipment based on the PD and SDD[18] as illustrated in Table III.[19]

TABLE III

TRANSPORTATION PRIORITY / MODE DESIGNATORS

UMMIPS Priority Designator	Transportation Priority	Shipment Mode
01-03	1	Air
04-08	2	Air
09-15	3	Surface

The impetus behind creating the "Desert Express" channel was the inability to move certain Transportation Priority 1 (TP-1) shipments. Those "certain" shipments included the most critical of high priority shipments. The service components used different methods of identifying those critical TP-1 items that required additional expedited handling with a signal or code such as Non-Mission Capable Supply (NMCS), "999", "Green

Sheet", or JCS Project Code. It is easy to see where these "priorities within a priority" tend to complicate the management of materiel movement control. These procedures work well during peacetime and in small-scaled conflicts that are short in duration (such as Grenada). But, in an operation the size of Desert Shield and Desert Storm, critical items become stranded at the APOE. In an article on priority materiel movement control, Major Gregory Stubbs wrote:

> "Movement control involves regulation of material flow based on total transportation capability and priority of multi-service need. Contingency situations almost always demand movement control, since, when requirements exceed transportation capability, decisions must be made about what goes first."[20]

The current priority system is adequate. It works in both peacetime and in war. It gives units some flexibility in assigning requisitioning priorities, as it should. The system does, however, get bogged down during a theater-wide contingency of any significant magnitude and duration. But, peacetime operations would not survive with a movement system designed solely for a wartime scenario--it would be much too restrictive. One way to reduce the potential for abuse in a peacetime materiel build-up or a Major Regional Contingency (MRC) is through tougher enforcement of the current rules. Even if successful, APOEs will still be flooded with air eligible cargo because there will not be sufficient airlift to preclude APOE backlogs during an MRC. Consequently, it is imperative that a high priority airlift channel for contingency operations be developed and formalized.

INSTITUTIONALIZING A HIGH PRIORITY AIRLIFT CHANNEL FOR CONTINGENCY OPERATIONS:

With the development, formalization, and promulgation of an express airlift channel into DOD directives, the armed forces of the United States will be better able to respond to an MRC anywhere in the world. JCS publications and theater Commander-in-Chief (CINC) contingency plans would be appropriate locations to delineate contingency express airlift guidance.

Within the JCS arena, Joint Pub 5-03.1, *Joint Operation Planning and Execution System* [JOPES], *Volume One, (Planning Policies and Procedures)* would be a suitable location for airlift guidance because JOPES is the system used by the DOD planning community to plan force composition, deployment, and sustainment scheduling for contingencies.

In the proposed final draft of Joint Pub 4-01.1, *Airlift Support to Joint Operations,* airlift materiel movement is addressed under the paragraph heading, "Strategic Airlift Request Process." It states:

> ". . .When requested by a supported CINC during contingencies, USTRANSCOM will establish air express service for rapid delivery of high priority cargo. The frequency and number of flights will be set without regard for efficiency factors based on the requirements received from the supported CINC."[21]

As stated above, the implementation of the express airlift channel should not be automatic during all contingencies, but generated on a basis of need as determined by the supported CINC

in concert with USTRANSCOM. The decision to implement this capability will largely be influenced by the size and duration of the contingency. As the size of an operation increases, so too will the need for an express airlift service.

Another possible place to outline express airlift procedures is Joint Pub 4-01.3, *Joint Tactics, Techniques, and Procedures for Movement Control*. This pub is divided into three main sections. The middle section is devoted to movement control issues in the area of intertheater strategic airlift--an opportune place to disseminate contingency express airlift guidance.

Annex J (Mobility) to the *Joint Strategic Capabilities Plan* (JSCP) is another suitable location to establish contingency express airlift procedures because the JSCP allocates resources to warfighting CINCs--to include airlift assets.

From the warfighting CINC's perspective, Annex D, Appendix 4, (titled) Mobility and Transportation, in CINC contingency plans would be a logical place to document express airlift procedures. The triggering mechanism to actually implement this system during a contingency must be: (1) unencumbered, (2) fully and easily understood; and (3) agreed upon by the JCS, the supported CINC, and USTRANSCOM. It is important to understand that these procedures must be in place for the decision and implementation phases to run smoothly.

CONCLUSION:

History has shown the need for express airlift during theater-wide contingencies to transport high priority cargo from stateside supply points to U.S. military forces in overseas theaters of operation. Express airlift systems were employed in the Second World War, the Korean Conflict, in Vietnam, and in the Persian Gulf War. The need for this service inevitably surfaced when urgent--"show-stopper"--shipments were bogged down to a standstill at the APOEs. These large backlogs of cargo occurred not so much because requisitioners were abusing the priority system, but because the actual volume of cargo dramatically increased over that which was normally seen during peacetime operations.

The express airlift service should be operated by a civilian air express company with their equipment (aircraft and infrastructure) at their airport hubs, unless the APOD is in a hostile environment. If the APOD environment is hostile, military aircraft should perform the airlift function. Regardless of who does it, it should be done at least daily. Each service will be allotted a certain amount of payload space for each mission as decided upon by the theater CINC and USTRANSCOM. All airlift cargo must be cleared for shipment by the respective service's ACA. ACAs work directly with the supported CINC to ensure the right shipments are being supported.

In order to capitalize on our past experiences, provisions and procedures for this express airlift system need to be written down and passed on to future generations of warfighters and supporting staffs so they do not have to "re-invent the wheel." This can be done by institutionalizing these procedures into DOD publications. Express airlift procedures should be depicted in Joint publications and in contingency plans of theater CINCs.

Reflecting on what we have learned from the past, future contingencies will require express airlift independent from normal channel airlift. In fact, express transportation requirements are likely to grow as our military services reduce inventories in response to budget pressures. Regardless, a system to facilitate the expedient, orderly airlift of essential materiel to support an MRC must be in place and worked out before the forces are deployed.

Notes

[1] Terry D. Basham and Jason G. Evgenides, Desert Express: Framework for Institutionalization of Express Airlift Procedures (Alexandria, VA: Defense Technical Information Center, 1992), pp. 13-19.

[2] Charles E. Miller, Airlift Doctrine (Maxwell Air Force Base, AL: Air University Press, 1988), p. 39.

[3] Hansford T. Johnson, "The Defense Transportation System." Defense Transportation Journal, 47: October 1991, p. 24.

[4] Joint Logistics Review Board, A Review of Logistic Support in the Vietnam Era, Vol I (Washington: Government Printing Office, 1970), p. 10.

[5] William H. Turner, Over the Hump (Washington: Office of Air Force History, 1985), p. 235.

[6] Jane S. Allen and David C. Rutenberg, ed., The Logistics of Waging War: American Military Logistics 1774-1985 (Gunter Air Force Base, AL: The Air Force Logistics Management Center, 1989), p. 137.

[7] Gregory D. Stubbs, "Movement Control: Enhancing Contingency Resupply," Air Force Journal of Logistics, Summer 1983, p. 2.

[8] Jane S. Allen and David C. Rutenberg, ed., The Logistics of Waging War: American Military Logistics 1774-1985 (Gunter Air Force Base, AL: The Air Force Logistics Management Center, 1989), p. 88.

[9] Charles E. Miller, Airlift Doctrine (Maxwell Air Force Base, AL: Air University Press, 1988), p. 329.

[10] William H. Turner, Over the Hump (Washington: Office of Air Force History, 1985), p. 231.

[11] Gregory D. Stubbs, "Movement Control: Enhancing Contingency Resupply," Air Force Journal of Logistics, Summer 1983, p. 3.

[12] Sheila L. Tow, "Airlift Delivered Victory," Defense Transportation Journal, 47: June 1991, p. 48.

[13] William C. Cook and others, Joint Material Apportionment and Allocation, (Arlington VA: System Research and Applications Corporation, 1988) p. 1.

[14] U.S. Dept. of Defense, Uniform Material Movement and Issue Priority System, DOD Directive 4410.6 (Washington: 1980), p. 4-5.

[15] Ibid., p. 6.

[16] William C. Cook and others, Joint Material Apportionment and Allocation, (Arlington VA: System Research and Applications Corporation, 1988) p. 2.

[17] U.S. Dept. of the Army, Requisitioning, Receipt, and Issue System, AR 725-50 (Washington: 1986), p. 21.

[18] U.S. Dept. of Defense, Military Standard Transportation and Movement Procedures, DOD Directive 4500.32R (Washington: 1991), p. B14-1.

[19] Joint Chiefs of Staff, Mobility Policies, Procedures and Considerations, Joint Pub 4-04 (Washington: 1985), p. IV-17.

[20] Gregory D. Stubbs, "Movement Control: Enhancing Contingency Resupply," Air Force Journal of Logistics, Summer 1983, p. 2.

[21] Joint Chiefs of Staff, Airlift Support to Joint Operations, Joint Pub 4-01.1 (Proposed Final Draft Pub) (Washington: 1993), p. II-11.

BIBLIOGRAPHY

Allen, Jane S. and David C. Rutenberg, ed. The Logistics of Waging War: American Military Logistics 1774-1985. Gunter Air Force Base, AL: The Air Force Logistics Management Center, 1989.

Basham, Terry D. and Jason G. Evgenides, Desert Express: Framework for Institutionalization of Express Airlift Procedures. Alexandria, VA: Defense Technical Information Center, 1992.

Cook, William C. and others. Joint Material Apportionment and Allocation: Arlington VA: System Research and Applications Corporation, 1988.

Johnson, Hansford T. "The Defense Transportation System." Defense Transportation Journal, 47: October 1991, pp. 21-30, 52-58.

Joint Chiefs of Staff. Joint Operation Planning and Execution System, Volume One. Joint Pub 5-03.1. Washington: 1993.

_____. Airlift Support to Joint Operations. Joint Pub 4-01.1. (Proposed Final Draft Pub). Washington: 1993.

Joint Logistics Review Board. A Review of Logistic Support in the Vietnam Era, Vol I. Washington: Government Printing Office, 1970.

Miller, Charles E. Airlift Doctrine. Maxwell Air Force Base, AL: Air University Press, 1988.

Stubbs, Gregory D. "Movement Control: Enhancing Contingency Resupply." Air Force Journal of Logistics, 3: Summer 1983, pp. 2-7.

Thalheim, Thomas C. Desert Express: An Analysis on Improved Customer Service. Alexandria, VA: Defense Technical Information Center, 1992.

Tow, Sheila L. "Airlift Delivered Victory." Defense Transportation Journal, 47: June 1991, pp. 47-53.

Turner, William H. Over the Hump. Office of Air Force History. Washington: HQ USAF, 1985.

U.S. Dept. of the Army. Requisitioning, Receipt, and Issue System. AR 725-50. Washington: 1986.

U.S. Dept. of Defense. Military Standard Transportation and Movement Procedures. DOD Directive 4500.32R. Washington: 1991.

_____. Uniform Material Movement and Issue Priority System. DOD Directive 4410.6. Washington: 1980.